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Toward Achieving a Carbon-Neutral Society: Beneficiation and Extractive Metallurgy for Producing Critical Metals from Ores/Wastes

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Message from the Guest Editors

The global climate change crisis has become a major issue in recent years, and it has forced us to pursue carbon neutrality as our common, primary, and initiative goal. For this, more than 130 countries have set or considering setting a target of reducing the greenhouse gas (GHG) emissions to net-zero by 2050 by replacing fossil-fuel-based energy and transportation systems to low-carbon technologies. However, these technologies require vast amounts of metals per unit generation compared to that of conventional fossil generation. Thus, the sustainable production of metals critical to a low carbon future is of topical importance to combat CO_2-induced climate change.

In this Special Issue, we invite articles that focus on recent advances in beneficiation and extractive metallurgy for producing critical metals from primary, as well as secondary resources, such as tailings, metallurgical residues, slags, E-wastes, or wastewater. We welcome not only research papers but also review papers, short communications, and case reports.

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Message from the Editorial Board

Metallic materials play a vital role in the economic life of modern societies; contributions are sought on fresh developments that enhance our understanding of the fundamental aspects related to the relationships between processing, properties and microstructure – disciplines in the metallurgical field ranging from processing, mechanical behavior, phase transitions and microstructural evolution, nanostructures, as well as unique metallic properties – inspire general and scholarly interest among the scientific community.

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